REMARKS

FORMAL MATTERS:

Claims 1-6, 10-15 and 17-20 are pending after entry of the amendments set forth herein.

Claims 7, 8, 9 and 16 are canceled without prejudice.

Claims 12, 14 and 17 are withdrawn.

Claims 1, 4, 10, 15, 19 and 20 are amended. Support for these amendments is found throughout the specification and claims as originally filed, for example, on page 6, lines 11-12.

No new matter is added.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 1, 7, 10, 11, 13 and 15 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Ujita et al. (U.S. Patent No. 6,170,939).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The standard for anticipation under section 102 is one of strict identity. An anticipation rejection requires a showing that each limitation of a claim be found in a single reference. *Atlas Powder Co. v. E.I. DuPont de Nemours & Co.*, 224 U.S.P.Q. 409, 411 (Fed. Cir. 1984). Further, an anticipatory reference must be enabling, so as to place one of ordinary skill in possession of the claimed invention. See *Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1479, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). To anticipate a claim, a prior art reference must disclose every feature of the claimed invention, either explicitly or inherently. *Glaxo v. Novopharm, Ltd.*, 334 U.S.P.Q.2d 1565 (Fed. Cir. 1995).

Claims 1, 10 and 15 are currently amended to include the element of a means for applying a vacuum and pressure to the contents of the reservoir, where the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube. In addition, Claim 7 has been cancelled without prejudice, and Claims 11 and 13 depend from Claim 10.

At best, Ujita discloses as follows:

> [T]he ink reservoir **309** is constructed such that an ink is impregnated in a porous material **310** received in the ink tank cartridge **303** in the compressed state. In general, to stably maintain performances of the ink jet recording apparatus, it is necessary that an ink pressure appearing in discharging orifices **323** of the ink jet recording head **301** is kept negative. To this end, the ink pressure in the ink tank cartridge **303** is usually kept negative. In this embodiment, the ink pressure is controlled by utilizing the capillary power of the porous material **310** so as to allow it to be kept negative.

See Ujita, col. 20, lines 22-33; and FIG. 5.

As such, Ujita merely discloses that the capillary power of the porous material keeps the ink pressure in the ink tank cartridge negative. Thus, nowhere does Ujita disclose the element of a means for applying a vacuum and pressure to the contents of the reservoir, as claimed by the Applicants.

Furthermore, as indicated above, Ujita discloses that "the ink pressure is controlled by utilizing the capillary power of the porous material **310** so as to allow it to be kept negative." Ujita, col. 20, lines 30-33; and FIG. 5. The Applicants submit that the passive capillary power of the porous material, as disclosed by Ujita, is not the same as the means for applying a vacuum and pressure to the contents of the reservoir, as claimed by the Applicants. In particular, the Applicants claimed invention includes the element that the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube.

In support of this, the Applicants respectfully refer the Examiner to the enclosed Declaration by Mr. Furuta, as well as the accompanying Test Report and supporting evidence. The Test Report and accompanying Figures 1 and 2 illustrate pneumatic control of printing in accordance with the Applicants' claimed invention. See Test Report, pg. 3; and Figs. 1-2. In addition, the enclosed Chemical Inkjet Printer CHIP-1000 Instruction Manual shows an embodiment of the Applicant's claimed invention that includes a chemical inkjet printer connected to a pump unit via a positive pressure port and a negative pressure port, and vacuum pressure adjustment knobs for adjusting the vacuum pressure. See Chemical Inkjet Printer CHIP-1000 Instruction Manual, pp. 2-4, 2-8, and 2-10.

The Test Report and Figures show that stable droplets are formed with pneumatic control, whereas operating without pneumatic control does not produce stable droplets. See Test Report, pg. 3; and Figs. 1-2. As indicated above, Ujita merely discloses passive capillary action of a porous material and does not disclose the pneumatic control necessary to produce stable droplets. In contrast, the Applicants' pneumatic control produces stable droplets because it is configured to apply the vacuum

such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube, as claimed by the Applicants.

Consequently, the Applicants submit that Ujita fails to anticipate the claimed invention because Ujita does not disclose every element of the Applicants' claimed invention. As such, the Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of Claims 1, 7, 10, 11, 13 and 15.

REJECTIONS UNDER 35 U.S.C. § 103(A)

Claims 2, 19 and 20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ujita et al. (U.S. Patent No. 6,170,939) in view of Kiser (U.S. Patent No. 6,854,595).

In order to meet its burden in establishing a rejection under 35 U.S.C. §103, the Office must first demonstrate that a prior art reference, or references when combined, teach or suggest all claim elements. *See e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007); *Pharmastem Therapeutics v. Viacell et al.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); MPEP § 2143(A)(1). In addition to demonstrating that all the elements were known in the prior art, the Office must also articulate a reason for combining the elements. *See e.g., KSR*, 127 S.Ct. at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) (citing *KSR*). Further, the Supreme Court in *KSR* also stated that that "a court *must* ask whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR*, 127 S.Ct. at 1740 (emphasis added). As such, in addition to showing that all elements of a claim were known in the prior art and that one of skill had a reason to combine them, the Office must also provide evidence that the combination would be a predicted success.

Claim 2 depends from Claim 1. Claims 1, 19 and 20 are currently amended to include the element of a means for applying a vacuum and pressure to the contents of the reservoir, where the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube.

As discussed above, Ujita is deficient in that it fails to disclose every element of the Applicants' claimed invention. The Applicants submit that Ujita also fails to suggest the above recited elements because, at best, Ujita merely discloses that the passive capillary power of the porous material keeps the ink pressure in the ink tank cartridge negative. Ujita, col. 20, lines 22-33; and FIG. 5. Thus, nowhere

does Ujita disclose or suggest a "means for applying a vacuum and pressure to the contents of the reservoir, where the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube", as claimed by the Applicants.

As Kiser was cited solely for its alleged disclosure of a plunger shaped and configured to abut with and seal the open top of the reservoir, Kiser fails to remedy the deficiencies of Ujita discussed above. Therefore, the cited combination of Ujita and Kiser does not disclose or suggest all the elements of the rejected claims, and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claims 2, 19 and 20.

Claims 3-6 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ujita et al. (U.S. Patent No. 6,170,939) in view of Kiser (U.S. Patent No.6,854,595), and further in view of Seidler et al. (U.S. Patent No. 3,774,455).

Claims 3-6 ultimately depend from Claim 1. As discussed above, Ujita is deficient in that it fails to disclose or suggest a "means for applying a vacuum and pressure to the contents of the reservoir, where the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube", as claimed by the Applicants. Kiser was cited solely for its alleged disclosure of a plunger shaped and configured to abut with and seal the open top of the reservoir. In addition, Seidler was cited solely for its alleged disclosure that the top of the reservoir is flared outwardly. Consequently, both Kiser and Seidler fail to remedy the deficiencies of Ujita. Therefore, the cited combination of Ujita, Kiser and Seidler does not disclose or suggest all the elements of the rejected claims, and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claims 3-6.

Claim 8 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ujita et al. (U.S. Patent No. 6,170,939) in view of Kopf (U.S. Patent No. 6,946,075).

Claim 8 has been cancelled without prejudice. Therefore, this rejection is rendered moot and may be withdrawn.

Claim 18 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ujita et al. (U.S. Patent No. 6,170,939) in view of Pawlowski, Jr. et al. (U.S. Patent No. 6,137,513).

Claim 18 depends from Claim 15. As discussed above, Ujita is deficient in that it fails to disclose or suggest a "means for applying a vacuum and pressure to the contents of the reservoir, where the means for applying the vacuum and pressure is configured to apply the vacuum such that the piezoelectric dispensing tube is operated under low vacuum conditions for droplet dispensing to control a fluid meniscus at an orifice of the piezoelectric dispensing tube", as claimed by the Applicants. Pawlowski was cited solely for its alleged disclosure of a hollow needle for piercing the septum. Consequently, Pawlowski fails to remedy the deficiencies of Ujita. Therefore, the cited combination of Ujita and Pawlowski does not disclose or suggest all the elements of the rejected claims, and the Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claim 18.

CONCLUSION

The Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number NJPO-001.

Respectfully submitted,
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Enclosures:

- Declaration of Masaru Furuta
- Chemical Inkjet Printer CHIP-1000 Instruction Manual

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